

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Hwang *et al.*

Application No.: Unassigned

Filed: Herewith

Title: VCSEL With Ion-Implanted Current-  
Confinement Structure

§ Group Art Unit: Unassigned  
§  
§ Examiner: Unassigned  
§  
§ Confirmation No.: Unassigned  
§  
§ Atty. Docket No. PAT034US

11011 U.S. PTO  
09/993239  
11/13/01

#4  
D. Scott  
5-4-02

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Yvonne R. Simera  
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**INFORMATION DISCLOSURE STATEMENT**

In compliance with the information disclosure statement requirements of 37 C.F.R. § 1.56  
and 1.97, Applicant hereby submits the attached references related to the above-identified  
application.

Respectfully submitted,

Date: 11-13-01

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Form PTO-1449 Department of Commerce Patent and Trademark Office  <b>INFORMATION DISCLOSURE STATEMENT IN AN APPLICATION</b>  (Use several sheets if necessary)		Docket No. <b>PAT034US</b>		Serial No. <b>Unassigned</b>		
		Applicants <b>Anselm et al.</b>				
		Filing Date <b>Herewith</b>		Group Art Unit <b>Unassigned</b>		
<b>U.S. PATENT DOCUMENTS</b>						
*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4,949,350	08/14/99	Jewell et al.			
	5,031,187	07/09/91	Orenstein et al.			
	5,115,442	05/19/92	Lee et al.			
	5,193,098	03/09/93	Welch et al.			
	5,219,785	06/15/93	Welch et al.			
	5,256,596	10/26/93	Ackley et al.			
<b>FOREIGN PATENT DOCUMENTS</b>						
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	<u>TRANSLATION</u> YES   NO
<b>OTHER (Including Author, Title, Date, Pertinent Pages, Etc.)</b>						
	Qian, Y. et al., "Long Wavelength (1.3 $\mu\text{m}$ ) Vertical-Cavity Surface-Emitting Lasers With a Wafer-Bonded Mirror and an Oxygen-Implanted Confinement Region," <i>Appl. Phys. Lett.</i> , Vol. 71, No. 1, (1997), pp. 25-27.					
	Ridgway, M. C., et al., "Single-Step Implant Isolation of $\text{p}^+$ -InP with 5-MeV O Ions," <i>Appl. Phys. Lett.</i> , Vol. 60, No. 24, (1992), pp. 3010-3012.					
	Huffaker, D. L. et al., "Native-Oxide Defined Ring Contact for Low Threshold Vertical-Cavity Lasers," <i>Appl. Phys. Lett.</i> , Vol. 65, No. 1, (1994), pp. 97-99.					
	Lee, Y. H. et al., "Top-Surface-Emitting GaAs Four-Quantum-Well Lasers Emitting at 0.85 $\mu\text{m}$ ," <i>Electronics Letters</i> , Vol. 26, No. 11, (1990), pp.710-711.					
EXAMINER				DATE CONSIDERED		
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.						

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		Applicant <b>Anselm <i>et al.</i></b>				
		Filing Date <b>Herewith</b>		Group Art Unit <b>Unassigned</b>		
U.S. PATENT DOCUMENTS						
*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,328,854	07/12/94	Vakhshoori <i>et al.</i>			
	5,594,751	01/14/97	Scott, Jeffrey W.			
	5,764,674	06/09/98	Hibbs-Brenner <i>et al.</i>			
	5,893,722	04/13/99	Hibbs-Brenner <i>et al.</i>			
	6,044,100	03/28/00	Hobson <i>et al.</i>			
	6,169,756 B1	01/02/01	Chirovsky <i>et al.</i>			
FOREIGN PATENT DOCUMENTS						
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES   NO
OTHER (Including Author, Title, Date, Pertinent Pages, Etc.)						
	Choquette, K. D., <i>et al.</i> , "Low Threshold Voltage Vertical-Cavity Lasers Fabricated by Selective Oxidation," <i>Electronics Letters</i> , Vol. 30, No. 24, (1994), pp. 2043-2044.					
	Deng, H. and Deppe, D. G. , "Oxide-Confined Vertical-Cavity Lser With Additional Etched Void Confinement," <i>Electronics Letters</i> , Vol. 32, No. 10, (1996), pp. 900-901.					
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